



Pace Analytical Services, Inc.  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
(504) 469-0333

September 11, 2012

Sandy Wackett  
DEQ LABORATORY  
602 N. Fifth St.  
Baton Rouge, LA 70802

RE: Project 20143712  
Project ID: BAYOU CORNE NG SEEP

Dear Sandy Wackett:

Enclosed are the analytical results for sample(s) received by the laboratory on September 07, 2012. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Cindy Olavesen".

Cindy Olavesen  
cindy.olavesen@pacelabs.com



## REPORT OF LABORATORY ANALYSIS

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Cover No Results 9/11/2012 17:29

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**Project:** 20143712

**Client:** DEQ LABORATORY

**Project ID:** BAYOU CORNE NG SEEP

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Washington Department of Ecology C2078  
Oregon Environmental Laboratory Accreditation - LA200001  
U.S. Dept. of Agriculture Foreign Soil Import P330-10-00119  
Pennsylvania Dept. of Env Protection (NELAC) 68-04202  
Texas Commission on Env. Quality (NELAC) T104704405-09-TX  
Kansas Department of Health and Environment (NELAC) E-10266  
Florida Department of Health (NELAC) E87595  
Oklahoma Department of Environmental Quality - 2010-139  
Illinois Environmental Protection Agency - 0025721  
California Env. Lab Accreditation Program Branch - 11277CA  
Louisiana Dept. of Environmental Quality (NELAC/LELAP) 02006





## Sample Cross Reference

Pace Analytical Services, Inc.  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
(504) 469-0333

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**Project:** 20143712

**Client:** DEQ LABORATORY

**Project ID:** BAYOU CORNE NG SEEP

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Client Sample ID	Lab ID	Matrix	Collection Date/Time	Received Date/Time
043-120906-01-0	201018664	Water	06-Sep-12 13:10	07-Sep-12 12:15
043-120906-02-0	201018665	Water	06-Sep-12 13:10	07-Sep-12 12:15



## Sample Results

Pace Analytical Services, Inc.  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
(504) 469-0333

Client: DEQ LABORATORY

Client ID: 043-120906-01-0

Project: 20143712

Project ID: BAYOU CORNE NG SEEP

Site: None

Lab ID: 201018664

Matrix: Water

% Moisture: n/a

Description: None

Prep Level: Water

Batch: 191740

Method: EPA 6010

Collected: 06-Sep-12

Received: 07-Sep-12

Metals, ICP, Water

Prepared: 08-Sep-12

Units: ug/L

CAS No.	Analyte	Dilution	Result	Qu	Reporting Limit	Reg Limit	Analysis
7440-70-2	Calcium	1	28200		5000		08-Sep-12 10:32 EJJ
7439-95-4	Magnesium	1	7370		5000		08-Sep-12 10:32 EJJ
7440-09-7	Potassium	1	6740		5000		08-Sep-12 10:32 EJJ
7440-23-5	Sodium	1	245000		5000		08-Sep-12 10:32 EJJ
7440-24-6	Strontium	1	141.		50.0		08-Sep-12 10:32 EJJ

5 compound(s) reported

ND denotes the analyte was analyzed for but not detected at the reporting limit or method detection limit indicated.

Protocol 9/11/2012 17:30:54  
Limits are corrected for sample size, dilution and moisture content if applicable.

Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.



## Sample Results

Pace Analytical Services, Inc.  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
(504) 469-0333

**Client:** DEQ LABORATORY

**Client ID:** 043-120906-02-0

**Project:** 20143712

**Project ID:** BAYOU CORNE NG SEEP

**Site:** None

**Lab ID:** 201018665

**Matrix:** Water

**%Moisture:** n/a

**Description:** None

**Collected:** 06-Sep-12

**Received:** 07-Sep-12

Analyte	Method	Batch	DF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Limit
Chloride	SM 4500-Cl E	191685	10	429.	D1	mg/L	10.0	07-Sep-12	07-Sep-12 13:44	JMA
Sulfate	ASTM D516-9	191692	1	4.99		mg/L	1.00	07-Sep-12	07-Sep-12 12:36	JMA
Total Dissolved Solids	SM 2540C	191766	1	900.		mg/L	10.0	08-Sep-12	08-Sep-12 09:20	JMA

3 parameter(s) reported



## Sample Results

Pace Analytical Services, Inc.  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
(504) 469-0333

**Client:** DEQ LABORATORY

**Client ID:** 043-120906-02-0 DUP 1

**Project:** 20143712

**Project ID:** BAYOU CORNE NG SEEP

**Site:** None

**Lab ID:** 201018665 DUP 1

**Matrix:** Water

**%Moisture:** n/a

**Description:** None

**Collected:** 06-Sep-12

**Received:** 07-Sep-12

Analyte	Method	Batch	DF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Limit
Sulfate	ASTM D516-9	191692	1	4.37		mg/L	1.00	07-Sep-12	07-Sep-12 12:36	JMA
Total Dissolved Solids	SM 2540C	191766	1	905.		mg/L	10.0	08-Sep-12	08-Sep-12 09:20	JMA
2 parameter(s) reported										

ND denotes the analyte was analyzed for but not detected at the reporting limit or method detection limit indicated.

Inorganics 9/11/2012 17:30:55

Limits are corrected for sample size, dilution and moisture content if applicable.

Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.



## Sample Results

Pace Analytical Services, Inc.  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
(504) 469-0333

**Client:** DEQ LABORATORY

**Client ID:** 043-120906-02-0 MS 1

**Project:** 20143712

**Project ID:** BAYOU CORNE NG SEEP

**Site:** None

**Lab ID:** 201018665 MS 1

**Matrix:** Water

**%Moisture:** n/a

**Description:** None

**Collected:** 06-Sep-12

**Received:** 07-Sep-12

Analyte	Method	Batch	DF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Limit
Sulfate	ASTM D516-9	191692	1	18.5		mg/L	1.00	07-Sep-12	07-Sep-12 12:36	JMA
1 parameter(s) reported										



## Quality Control

Pace Analytical Services, Inc.  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
(504) 469-0333

**Batch:** 191740      **Project:** 20143712      **LCS:** 201018852 08-Sep-12 10:11  
**Method:** Water ICP Metals      **MS:** 201018853 08-Sep-12 10:18  
**Units:** ug/L      **MSD:** 201018854 08-Sep-12 10:21  
**Original for MS:** Batch Sample      201018316

Parameter Name	LCS	LCS	LCS	MS	Sample	MS	MSD	MS	MSD	RPD	QC Limits		Max	Qu
	Spike	Found	%Rec	Spike	Found	Found	Found	%Rec	%Rec		LCS	MS/MSD	RPD	
Calcium	10000	9000	90	10000	74400	82000	85900	76	115	5	81-125	10-181	20	
Magnesium	10000	8830	88	10000	23400	32200	33800	88	104	5	84-119	33-160	20	
Potassium	10000	9340	93	10000	4510	14200	14900	97	104	5	77-124	48-166	20	
Sodium	10000	9370	94	10000	32200	41300	43300	91	111	5	71-131	17-178	20	
Strontium	1000	903.	90	1000	384.	1290	1350	90	97	5	82-123	70-125	20	

5 compound(s) reported





## Blank Results

Pace Analytical Services, Inc.  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
(504) 469-0333

**Blank ID:** 191740 BLANK 1

**Project:** 20143712

**Lab ID:** 201018851

**Prep Level:** Water

**Batch:** 191740

**Method:** Water ICP Metals

**Prepared:** 08-Sep-12

						Units: <u>ug/L</u>		
CAS Numb	Analyte	Dilution	Result	Qu	Reporting Limit		Analysis	
7440-70-2	Calcium	1	62.0	J	5000		08-Sep-12 10:07	EJH
7439-95-4	Magnesium	1	ND		5000		08-Sep-12 10:07	EJH
7440-09-7	Potassium	1	ND		5000		08-Sep-12 10:07	EJH
7440-23-5	Sodium	1	ND		5000		08-Sep-12 10:07	EJH
7440-24-6	Strontium	1	ND		50.0		08-Sep-12 10:07	EJH
5 compound(s) reported								

ND denotes the analyte was analyzed for but not detected at the reporting limit or method detection limit indicated.

Protocol Blank 9/11/2012 17:30:5  
Limits are corrected for sample size, dilution and moisture content if applicable.  
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.



## Inorganics Quality Control

Pace Analytical Services, Inc.  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
(504) 469-0333

Project: 20143712

Parameter	Batch	Blank	Units	LCS Spike	LCS Found	LCS %Rec	MS Spike	Sample Found	MS Found	MSD Found	MS %Rec	MSD %Rec	RPD	QC Limits		Max	Qu
Chloride	191685	< 1.00	mg/L	69.0	63.1	91	100.	58.5	138.		79		0	90-110	75-125	20	
Sulfate	191692	< 1.00	mg/L	30.9	29.1	94	10.0	5.00	18.5		135 *		13	90-110	75-125	20	
Total Dissolved Solid	191766	< 10.0	mg/L	100.	81.0	81							1	80-120		20	

\* denotes recovery outside of QC limits.



## Definitions/Qualifiers

Pace Analytical Services, Inc.  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
(504) 469-0333

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**Project:** 20143712

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Value	Description
D1	The analysis was performed at a dilution due to the high analyte concentration.
J	This estimated value for the analyte is below the adjusted reporting limit but above the instrument reporting limit.
U	The analyte was analyzed for but not detected at the reporting limit or method detection limit indicated.
B	This analyte was detected in the method blank.
E	The sample concentration is above the linear calibrated range of the analysis.
LCS	Laboratory Control Sample.
MS(D)	Matrix Spike (Duplicate).
DUP	Sample Duplicate.
RPD	Relative Percent Difference.

# Chains of Custody

## INTERNAL CHAIN OF CUSTODY

EPN/SDG #:

Client:

Analytical Fraction:

20143712

DEQ

met, wa, sub 60

PACE ID	CLIENT ID	PACE ID	CLIENT ID
201018664	043-120906-01-0		
201018665	043-120906-02-0		

DATE	RELINQUISHED BY	RECEIVED BY	COMMENTS
9-7-12	Printed Name: J Miller Signature: J Miller	Printed Name: TRACY Signature: Jy	EASLEY Easley
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	

## INTERNAL CHAIN OF CUSTODY

EPN/SDG #:

Client:

Analytical Fraction:

20143712

DEQ

net, wa, sub-60

PAGE ID	CLIENT ID	PAGE ID	CLIENT ID
201018664	043-120906-01-0		
201018665	043-120906-02-0		

DATE	RELINQUISHED BY	RECEIVED BY	COMMENTS
9-7-12	Printed Name: J Miller Signature: J Miller	Printed Name: Earl Hippen Signature: Earl Hippen	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	



60128608

## INTERNAL CHAIN OF CUSTODY

EPN/SDG #:

Client:

Analytical Fraction:

20143712

DEQ

mt, wa, 5.1-60

PACE ID	CLIENT ID	PACE ID	CLIENT ID
201018664	043-120906-01-0	711	
201018665	043-120906-02-0		

DATE	RELINQUISHED BY	RECEIVED BY	COMMENTS
9-7-12	Printed Name: J Miller Signature: J Miller	Printed Name: E Brockhoff Signature: E Brockhoff	9/8/12 0900
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	
	Printed Name: Signature:	Printed Name: Signature:	

20143712

Department of Environmental Quality  
Chain of Custody Record

AI: 162981 Site: Bubbling Site #5 - Grand Bayou

Location Name: Bayou Come N6 Sep Incident

Address: Belle Rose, LA

Sample Collector(s): Louis Martin

[illegible]

**Additional Comments:**

Relinquished by:	Date:	Time:	Received by:
Lain Dayton	9-6-12	14:00	Daniel A. Chert
Daniel Chertman	9-7-12	08:35 m6	Theresa A. Hargrave
Theresa A. Hargrave	9-7-12	2:15	J. M. Clark
			2-5





1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

Sample Cor

2 20143712 20-DEQ LAB 1



Project #

Courier: ☒ Pace Courier ☐ Hackbarth ☐ Fed X ☐ UPS ☐ DHL ☐ USPS ☐ Customer ☐ Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: ☒ Yes ☐ No

Thermometer  
Used:

- ☐ Therm Fisher IR 1  
☐ Therm Fisher IR 2  
☐ Therm Fisher IR 4

Type of Ice:

Wet

Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining  
contents: 9-7-12 Jm

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14
Headspace in VOA Vials ( >6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17
Pace Trip Blank Lot # (if purchased):	N/A	18

Client Notification/ Resolution:

Person Contacted:

Date/Time:

Comments/ Resolution:

## **Subcontract Data/Reports**

September 11, 2012

Project Manager  
Pace Analytical New Orleans  
1000 Riverbend Blvd  
Suite F  
St. Rose, LA 70087

RE: Project: 20143712 BAYOU CORNE NG SEEP  
Pace Project No.: 60128608

Dear Project Manager:

Enclosed are the analytical results for sample(s) received by the laboratory on September 08, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Alice Flanagan

alice.flanagan@pacelabs.com  
Project Manager

Enclosures

cc: "Randy" William Shackleford, PASI New Orleans



## REPORT OF LABORATORY ANALYSIS

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Page 1 of 8

## CERTIFICATIONS

Project: 20143712 BAYOU CORNE NG SEEP

Pace Project No.: 60128608

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### Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

A2LA Certification #: 2456.01

Arkansas Certification #: 12-019-0

Illinois Certification #: 002885

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407-12-3

Utah Certification #: KS000212012-2

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 20143712 BAYOU CORNE NG SEEP

Pace Project No.: 60128608

Lab ID	Sample ID	Matrix	Date Collected	Date Received
201018665	043-120906-02-0	Water	09/06/12 13:10	09/08/12 09:00

## REPORT OF LABORATORY ANALYSIS

Page 3 of 8

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## SAMPLE ANALYTE COUNT

Project: 20143712 BAYOU CORNE NG SEEP

Pace Project No.: 60128608

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
201018665	043-120906-02-0	EPA 300.0	OL	1	PASI-K

## REPORT OF LABORATORY ANALYSIS

Page 4 of 8

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## ANALYTICAL RESULTS

Project: 20143712 BAYOU CORNE NG SEEP

Pace Project No.: 60128608

<b>Sample: 043-120906-02-0</b>		<b>Lab ID: 201018665</b>	Collected: 09/06/12 13:10	Received: 09/08/12 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0						
Bromide	1.1	mg/L	1.0	1		09/10/12 15:54	24959-67-9	

## QUALITY CONTROL DATA

Project: 20143712 BAYOU CORNE NG SEEP

Pace Project No.: 60128608

QC Batch: WETA/21578

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 201018665

METHOD BLANK: 1057526

Matrix: Water

Associated Lab Samples: 201018665

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	09/10/12 11:16	

LABORATORY CONTROL SAMPLE: 1057527

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1057528

1057529

Parameter	Units	1208676001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromide	mg/L	ND	250	250	264	261	97	96	75-119	1	10	

MATRIX SPIKE SAMPLE: 1057530

Parameter	Units	60127896001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	ND	250	267	107	75-119	



## QUALIFIERS

Project: 20143712 BAYOU CORNE NG SEEP

Pace Project No.: 60128608

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-K Pace Analytical Services - Kansas City

## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 20143712 BAYOU CORNE NG SEEP

Pace Project No.: 60128608

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
201018665	043-120906-02-0	EPA 300.0	WETA/21578		